

SUMMARY OF THE CLAIMS

Claim 1 (currently amended) An optical control device that does not use a color filter or backlighting, the device comprising:

- a first substrate with at least one light output layer;
- a second substrate with a light transmitting function, positioned opposite to the first substrate;
- a liquid crystal sandwiched between the first and second substrates,
- first electrodes, on one of the first and second substrates, for applying multiple scan signals; and
- second electrodes, on the other of the first and second substrates, for applying multiple signal voltages; and
- a layer with a light polarizing function on the first substrate,

wherein:

the light output layer is arranged in stripes and extends in the same direction as the first electrodes; and the first substrate, the light output layer, the layer with a light polarizing function, the liquid crystal, and the second substrate are arranged in this order, and

wherein the at least one light output layer shines when a specified time has elapsed after a complete set of data signals for each scan line is transmitted to the first electrodes and extinguishes before a succeeding complete set of data signals for each scan line is transmitted.

Claim 2 (currently amended) An optical control device that does not use a color filter or backlighting, the device comprising:

- a first substrate with at least one light output layer;
- a second substrate with a light transmitting function, positioned opposite to the first substrate;
- multiple active elements on one of the first and second substrates;
- gate electrodes, on the one of the first and second substrates, for applying multiple scan signals; and

source electrodes, on the other of the first and second substrates, for applying multiple signal voltages,

wherein:

each light output layer is arranged in stripes and extends in the same direction as the gate electrodes;

each light output layer shines simultaneously with adjacent light output layers, but with a different wavelength from those of the adjacent light output layers; and

the light output layers shine when a specified time has elapsed after a complete set of data scan signals for each scan line ~~is~~^{are} transmitted to the gate electrodes and extinguish before a succeeding complete set of data scan signals for each scan line ~~is~~^{are} transmitted.

Claim 3 (original) The optical control device as defined in claim 2, wherein the active elements are provided on the second substrate.

Claim 4 (previously presented) The optical control device as defined in claim 2, further comprising:

a layer with a light polarizing function on the first substrate.

Claim 5 (previously presented) The optical control device as defined in claim 1, wherein:

the light output layer provided on the first substrate is formed by a light emitting layer composed of at least one of an organic EL light emitter, an inorganic EL light emitter, and an FED light emitter; and

the light emitting layer shines with application of a voltage across the first electrodes and the second electrodes.

Claim 6 (previously presented) The optical control device as defined in claim 2, wherein:

the light output layer provided on the first substrate is formed by a light emitting layer composed of at least one of an organic EL light emitter, an inorganic EL light emitter, and an FED light emitter;

the gate electrodes, the light emitting layer, and the source electrodes are provided in this order on the first substrate; and

the light emitting layer shines with application of a voltage across the gate electrodes and the source electrodes.

Claim 7 (previously presented) The optical control device as defined in claims 1, wherein

the light output layer includes an optical waveguide and a light source coupled to the optical waveguide and positioned in a non-display section area.

Claim 8 (previously presented) The optical control device as defined in claim 2, wherein

the light output layer includes an optical waveguide and a light source coupled to the optical waveguide and positioned in a non-display section area.

Claim 9 (original) The optical control device as defined in claim 1, wherein

the light output layer shines with spectrum periodically varying according to a position of the light output layer.

Claim 10 (original) The optical control device as defined in claim 9, wherein the light output layer shines with spectrum periodically varying for each pixel.

Claim 11 (currently amended) An optical control device-driving method, comprising the steps of:

~~(a) using an optical device that does not use a color filter or backlighting, the device including:~~

- a first substrate with at least one light output layer;
- a second substrate with a light transmitting function, positioned opposite to the first substrate;
- a liquid crystal sandwiched between the first and second substrates;
- first electrodes, on one of the first and second substrates, for applying multiple scan signals;

second electrodes, on the other of the first and second substrates, for applying multiple signal voltages; and

a layer with a light polarizing function on the first substrate,

wherein:

the light output layer is arranged in stripes and extends in the same direction as the first electrodes; and

the first substrate, the light output layer, the layer with a light polarizing function, the liquid crystal, and the second substrate are arranged in this order, and

setting such that the light output layer shines for a duration of 5 to 70% of each display frame time,

shining the at least one light output layer when a specified time has elapsed after a complete set of data signals for each scan line is transmitted to the first electrodes; and

extinguishing said at least one light output layer before a succeeding complete set of data signals for each scan line is transmitted.

Claim 12 (previously presented) The optical control device-driving method as set forth in claim 11, wherein the light output layer shines for a duration of 15% to 40% of each display frame time.

Claim 13 (currently amended) An optical control device-driving method, the method comprising the steps of :

providing an optical device, wherein the optical device includes:

a first substrate with at least one light output layer;

a second substrate with a light transmitting function, positioned opposite to the first substrate;

a liquid crystal sandwiched between the first and second substrates;

first electrodes, on one of the first and second substrates, for applying multiple scan signals;

second electrodes, on the other of the first and second substrates, for applying multiple signal voltages; and

a layer with a light polarizing function on the first substrate,
wherein:

the light output layer is arranged in stripes and extends in the same direction
as the first electrodes; and

the first substrate, the light output layer, the layer with a light polarizing
function, the liquid crystal, and the second substrate are arranged in this
order;

shining the light output layer when a specified time has elapsed after a
complete set of data~~scan~~ signals for each scan line ~~is~~~~are~~ transmitted to scan lines; and
extinguishing said light output layer before a succeeding complete set of data
~~scan~~-signals for each scan line ~~is~~~~are~~ transmitted.

Claim 14 (currently amended) An optical control device-driving method, the method
comprising the steps of:

providing an optical device, wherein the optical device includes:

a first substrate with at least one light output layer,

a second substrate with a light transmitting function, positioned opposite
to the first substrate;

a liquid crystal sandwiched between the first and second
substrates;

electrodes, on one of the first and second substrates, for applying
multiple scan signals;

electrodes, on the other of the first and second substrates, for applying
multiple signal voltages; and

a layer with a light polarizing function on the first substrate,
wherein:

the light output layer is arranged in stripes and extends in the same direction
as the electrodes for applying the multiple scan signals; and

the first substrate, the light output layer, the layer with a light polarizing
function, the liquid crystal, and the second substrate are arranged in this
order;

shining the light output layer when a specified time has elapsed after a complete set of data~~scan~~ signals for each scan line is transmitted to scan lines; and extinguishing said light output layer before a succeeding complete set of data~~scan~~ signals for each scan line is transmitted;

wherein the light output layer shines with a different wavelength from those of adjacent light output layers; and

more than one light output layers that shine with mutually different wavelengths are caused to shine simultaneously.

Claim 15 (original) The method as defined in claim 14, wherein

each light output layer is either red, green, or blue so that red, blue, and green repeat periodically.

Claim 16 (original) The optical control device defined in claim 2, wherein

the first substrate, the light output layer, the liquid crystal, and the second substrate are arranged in this order.

Claim 17 (original) The optical control device defined in claim 2, wherein

the light output layer is adjusted in terms of luminance for each gate electrode.

Claim 18 (original) The optical control device as defined in claim 2, wherein

the light output layer is adjusted in terms of luminance in accordance with a maximum luminance which is based on the signal voltages applied to the source electrodes.

Claim 19 (original) The optical control device defined in claim 2, wherein

the light output layer shines with spectrum periodically varying according to a position of the light output layer.

Claim 20 (original) The optical control device as defined in claim 19, wherein

the light output layer shines with spectrum periodically varying for each pixel.

Claim 21 (previously presented) The optical control device as defined in claim 1, wherein the layer with the light polarizing function is provided on the light output layer.

Claim 22 (previously presented) The optical control device as defined in claim 4, wherein the layer with the light polarizing function is provided on the light output layer.

Claim 23 (previously presented) The optical control device as defined in claim 11, wherein the layer with the light polarizing function is provided on the light output layer.

Claim 24 (previously presented) The optical control device as defined in claim 13, wherein the layer with the light polarizing function is provided on the light output layer.

Claim 25 (previously presented) The optical control device as defined in claim 14, wherein the layer with the light polarizing function is provided on the light output layer.

Claim 26 (new) The optical control device as defined in claim 1, wherein
the light output layer is adjusted in terms of luminance to a maximum
luminance of the data signals for each scan line.

Claim 27 (new) The optical control device as defined in claim 2, wherein
the light output layer is adjusted in terms of luminance to a maximum
luminance of the data signals for each scan line.

Claim 28 (new) The method as defined in claim 11, comprising the step of adjusting
the light output layer, corresponding to each scan line, in terms of luminance to a
maximum luminance of the data signals for each scan line.

Claim 29 (new) The method as defined in claim 13, comprising the step of adjusting the light output layer, corresponding to each scan line, in terms of luminance to a maximum luminance of the data signals for each scan line.

Claim 30 (new) The method as defined in claim 14, comprising the step of adjusting the light output layer, corresponding to each scan line, in terms of luminance to a maximum luminance of the data signals for each scan line.